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# The Effectiveness of Collaborative Writing Wiki in Developing EFL Writing Skills and Reducing Apprehension of Al Azhar Secondary Stage Students

# *By* Mohamed Adel Abd El-Wahab

## Supervised by

Prof. Asmaa Abdel-Moneim Dr. Ibrahim Hussien Raslan Mostafa

Journal of The Faculty of Education- Mansoura University
No. 120 - Oct . 2022

# The Effectiveness of Collaborative Writing Wiki in Developing EFL Writing Skills and Reducing Apprehension of Al Azhar Secondary Stage Students

### **Mohamed Adel Abd El-Wahab**

### **Abstract**

This study aimed to identify the effectiveness of collaborative writing wiki in developing EFL writing skills and reducing apprehension of al Azhar secondary stage students. The study used certain instruments: an EFL writing skills questionnaire, an EFL writing pre-post-test, an EFL writing skills rubric, and an EFL writing apprehension inventory. The study came up with a number of results. The participants consisted of 60 first year Al-Azhar secondary stage students. They were divided into two groups; the control group which was instructed via traditional teaching method and the experimental group which was instructed via collaborative writing wiki. There was a statistically significant difference between the mean scores of the control group and the experimental group on the post applications of the EFL writing skill test in favor of the experimental group. There was a statistically significant difference between the mean scores of the experimental group pre and post applications of the EFL writing skill test in favor of the post application. There was a statistically significant difference between the mean scores of the experimental group and the control group on the post applications of the writing apprehension inventory in favor of the experimental group. There was a statistically significant difference between the mean scores of the experimental group pre and post applications of EFL writing apprehension test in favor of the post application. The study provided evidence for the effectiveness of using collaborative writing wiki in developing wringing skills and reducing writing apprehension.

Key words: wiki, collaborative writing, EFL writing skills, apprehension

### Introduction

Writing is a crucial language skill that enables people to express their feelings and thoughts. They use it to define themselves, clarify their knowledge and their ideas, to understand the problems that may face them as well as to find solutions for such problems. Writing skill is considered as one way of measuring individual's own language proficiency. Learning to write in English as a foreign language allows learners to put their thoughts on paper, see their ideas in print, and share them with others. Writing also

enhances language acquisition as learners deal with words, sentences, and large chunks of writing to communicate their ideas effectively and to reinforce grammar and vocabulary they are learning in class (Bello, 1997). Writing in a foreign language helps learners to improve their grammatical, strategic, sociolinguistic, and discourse competences in target language (scarcella & Oxford, 1992).

In spite of the importance of writing, it is one of the most difficult language skills to acquire. Writing is recognized as an enormously complex activity (Olander, 2007). It needs time, effort, practice, learning, and teachers' instruction. Writing is different from spoken language, as it requires the readers to understand and interpret what has been written. Writing is very difficult as it is more complex and more abstract than talk (Gunning, 1998). Writing is especially difficult for nonnative speakers because they are expected to create written products with specific rules, criteria, and shapes (Abu-Rass, 2001). A lot of research studies conducted in the various EFL contexts strongly suggested that EFL learners face maximum problems in their writing (Tahaineh, 2010; Rababah, 2003; Bacha, 2002; Kharma & Hajjaj, 1997). Thus, writing is not an easy skill, or a natural process that just happens.

### **Background of the study**

There are many reasons for the difficulties in writing in EFL classes. Students often have many basic mistakes in written works about spelling, grammar, punctuation and organization. The challenges in writing may result from both the cognitive aspect (e.g., a lack of an appropriate writing process or insufficient knowledge about grammar, vocabulary, etc.) and the affective aspect (e.g., writing apprehension) of writing (Lee, 2005; Silva 1993). According to the cognitive aspect, writing skill is considered a complex skill since it requires the students to apply the appropriate cognitive strategies, intellectual skills, verbal information, and appropriate motivation (Lee, 2005).

EFL learners in the secondary schools face difficulties while writing English language because they are not adequately familiar with English language and they do not have enough practice of it (Graham, Harris & Mason, 2005).

El-Ashri (2014) divided functional writing skills in English for first year secondary institutes in Al-Azhar into four categories (content, organization, language fluency and language accuracy):

The content is divided into:

1- presenting the main idea in the form of a topic sentence.

- 2- presenting a number of accurate and well-chosen details to support the main idea.
- 3- giving the reader relevant, coherent and important information in line with the topic.

The organization is divided into:

- 1- writing a strong related topic sentence that gives clues about what is coming next.
- 2-using logical sequence to help the ideas flow together.
- 3- writing a suitable conclusion.
- 4- using the correct layout of the form of writing a paragraph, a letter and an e-mail.

The fluency is divided into:

- 1- using complete sentences rich with suitable vocabulary.
- 2- using various correct sentence structures.

The accuracy is divided into:

- 1- using correct punctuation.
- 2- using correct spelling.
- 3- using eligible handwriting.

Al-neguly(2013) divided writing English skills for first year secondary schools into four categories (content, organization, grammar usage and word choice, and mechanics of writing):

The content is divided into:

- 1-creating relevant ideas that support the main ideas.
- 2-writing for different purposes.
- 3-writing a variety of audiences.

The organization sub-skill's can be divided into:

- 1-using logical procession of ideas.
- 2-writing a suitable conclusion.
- 3-writing a suitable conclusion.

The grammar usage and word choice are divided into:

- 1- applying correct use of pronouns.
- 2- applying correct use of articles.
- 3-applying correct use of adverb.

The mechanic is divided into:

- 1- using correct spelling.
- 2- applying correct punctuation.

Apprehension is one of the factors that affects the writing process. It has a negative influence on EFL/ESL learners' writing skill and quality

(Rubin, Katznelson & Perpignan 2005; Ozturk & Cecen, 2000, Huang, 2009, Zhang, 2001, Brown, 2000).

Previous researchers proved that EFL students face some writing problems and difficulties because it consists of different

Aspect of language, for example punctuation, spelling, vocabulary, grammar and syntax (Belhabib, 2015). Spelling is difficult for learners because of the absence of full similarity between the sound of vocabulary and the way it is

spelt. The reason for grammar complexity is the main difference between the mother tongue of our learners and English. (Harmer, 2017). EFL learners have problems in dealing with the English language because of their limited vocabulary. A little vocabulary prevents the EFL learners to present their ideas, since it affects their English badly (Al-Zahrani, 2011). The use of different punctuation marks seems to be the difficult task for the learners because it needs much time, information and experience (Murray & Hughes, 2008).

These problems and difficulties can be solved through integrating pedagogical strategy (collaborative writing) with the application of Computer-Mediated Communication (wikis) which can enhance students' cognition in writing or students' writing skill, and also can reduce students' fear of second language writing (Hadjerrouit, 2011).

### Collaborative writing wiki

Collaborative writing has its origin from collaborative learning. The advantages of collaborative writing are: reducing apprehension, helping to form cohesive and mature groups, promoting critical thinking, fostering excellence, and promoting motivation (Brown, 2001, Hidi & Boscolo, 2007, Hinkel, 2004). Despite the importance of collaborative writing, research on collaborative writing is limited in EFL /ESL contexts probably due to the difficulty of using small groups in writing classes. Storch (2005) assures that collaborative writing projects, particularly involving more than two writers, are actually undertaken, and these types of projects have received little research or incomplete attention.

One of the most significant CMC applications of the internet age is wikis. wiki can be defined simply as "a collective website where a large number of participants are allowed to modify or create pages using their web browser"(Desilets, 2006). wikis have several significant advantages when used as an educational tool during the process of writing in EFL classes. Wikis facilitate the development of cognitive skills, promote English

language, enhance writing skills, and increase motivation. Wikis encourage students to read, write, and converse more often. Using wikis can increase students' motivation, since computers are associated with fun and games and considered to be fashionable (Lee, 2000).

Writing in wikis provides a sense of audience and motivates students to write well. Wikis offer opportunities for authentic expression in the external world (Castaneda, 2011; Kuteeva, 2011). Other studies have also shown that wikis motivate many students to write well and improve writing ability in EFL classes through working together (Grant, 2006). Many researchers point out that wikis are helpful in reducing students' fear of EFL writing (Ducate & Lomicka, 2008; Pinkman, 2005).

### **Related Studies**

Some studies on the use of wikis in EFL classes such as:

Chen 2008; Kessler 2009, Kovacic 2007, Lund 2008, Miyazo & Anderson 2010, Muscara & Beercock 2010, and Solvie 2008 revealed that:

- students had positive attitudes towards using wikis in learning.
- the free-writing wiki task allowed EFL students to practice writing skills in different genres and to suit individual and gender preference on rhetorical selection.
- the students perceived using wiki as an interesting and motivating learning environment.
- the students involved writing through wiki were able to overcome writing apprehension and increase writing skills.
- the students enjoyed using the wiki and commented how it helped them to work better as a team and write better.
- wiki encouraged peer- to- peer interaction as well as facilitated online group work in writing skills.
- exploring the use of a wiki with a wider range of written forms in order to enable our student teachers to draw links with other aspects of their developing practice.

A number of studies on the use of collaborative writing in EFL classes such as: Biria 2013; Jahin 2012, Khatib & Meihami 2015, and Wigglesworth & Storch 2009 revealed that using collaborative techniques and activities had a positive effect on overall writing skill of EFL students, and on writing components such as content, organization, grammar, vocabulary, and mechanics.

A number of studies on writing skills at secondary stage in general and especially in AL- Azhar such as Zahran (2015) assured that the reasons behind the weakness in writing among students in secondary stage could be

summarized up in lack of vocabulary register, structure, organization of ideas, grammar, spelling, and referencing. Helal (2003) classified the skills of writing to grammar, spelling, word order, vocabulary choice, the organization and development of their writing. Learning EFL writing for secondary institutes in Al-Azhar required some specific skill as: content, organization, vocabulary, language use, spelling, punctuation and accurate capitalization and paragraphing (Mogahed, 2007). El-Ashri (2014) divide writing skills in English for first year secondary institutes in Al-Azhar into four categories (content, organization, language fluency and language accuracy.

Studies on writing apprehension in EFL classes such as Kim 2006; Lee 2005, and Singh 2012 showed that writing apprehension had a negative impact on writing skill. The level of writing apprehension was the main reason for students to avoid writing in English language.

Based on the previously mentioned studies, it becomes clear that EFL learners face problems in writing as writing skill and writing apprehension. These problems can be solved through using wikis as an application of CMC with collaborative writing as a pedagogical strategy.

### The pilot study:

To provide evidence for the problem of the study, the researcher conducted a pilot study on thirty students at the

first year secondary from Shoha Secondary institute Mansoura Educational Zone. A writing test was administered to EFL secondary students to determine their current level in writing. The results of the test are shown in the following table:

**Table (1): Results of the writing test** 

N	Total	Minimum	Maximu	Mean	Std.	Percen
		Score	m Score		Deviation	tage
30	30	12	27	10.8	4.06	37.59%

The above table shows that the mean score of the students on writing test is below average (m=10.8 & %=37.59%)and indicates that the low level in writing skills of those students.

This means that the students' current level in writing skill needs improvement.

### **Statement of the Problem:**

Based on the literature, the researcher's observations and the results of the pilot study, the problem of the study is stated as follows:

Al Azhar secondary stage students have difficulties in EFL writing skills and high level of writing apprehension. This may be due to using

traditional and instructional strategies inside the EFL writing classes. Thus, the current study investigated the use of collaborative writing wiki to develop Al-Azhar secondary stage students` EFL writing skills and reduce their writing apprehension.

### Questions of the study:

The problem of the study is explored through answering the following main question:

Can collaborative writing wiki enhance Al- Azhar secondary stage students' EFL writing skills and reduce their writing apprehension?

This main question leads to the following sub-questions:

- -What is the current level of the first year Al-Azhar secondary stage students in EFL writing skill?
- -To what extent is the collaborative writing wiki effective in developing EFL writing skill of the first year Al-Azhar secondary stage students?
- -To what extent is the collaborative writing wiki effective in reducing EFL writing apprehension of the first year Al- Azhar secondary stage students?

### Purpose of the study:

- 1- Assessing the current level of the first year Al-Azhar secondary students in EFL writing skill.
- 2- Investigating the effectiveness of writing wiki in developing EFL writing skill of first year Al-Azhar secondary stage students.
- 3- Investigating the effectiveness of writing wiki in reducing EFL writing apprehension of first year Al-Azhar secondary stage students.

### **Hypotheses of the study:**

The study will verify the following hypotheses:

- 1-There is a statistically significant difference between the mean scores of the control group and that of the experimental group on the post application of the writing skill test in favor of the experimental group.
- 2-There is a statistically significant difference between the mean scores of the experimental group pre and post applications of the writing skill test in favor of the post one.
- 3- There is a statistically significant difference between the mean scores of the experimental group and the control group on the post applications of the writing apprehension inventory in favor of the experimental group.

4-There is a statistically significant difference between the mean scores of the experimental group pre and post applications of the writing apprehension inventory in favor of the post one.

### **Definition of terms:**

Wiki:

Wiki can be defined as "quick user-friendly web pages that allow users to create, edit, and save text collaboratively" (Solvie, 2008). In this study, wikis can be defined as web based tool which can be used by first year Al-Azhar secondary stage students to collaboratively create, edit and publish written products.

### **Collaborative writing:**

Collaborative writing can be defined as "Collaborative writing strategy is a teaching writing technique that allows students to work together in pairs or groups to produce a good writing." (Sukirman, 2016). In this study, Collaborative writing can be defined as producing a single text by more than one student (a team of students) through generation ideas, researching, planning, drafting, revising, editing and publishing.

### Writing apprehension:

Writing apprehension can be defined as to "the fear of the writing process that outweighs the projected gain from ability to write." (Öztürk & Ceçen ,2007)

In this study, writing apprehension can be defined as the first year Al-Azhar secondary stage students' negative and anxious feelings that hinder their EFL writing process.

### Method of the study:

Methodology of the current study includes the participants, instruments, design, and procedures followed to carry out the study.

### **Participants:**

The Participants of the present study consisted of 60 first year AlAzhar secondary stage students at Shoha secondary institute in Mansoura. The researcher divided them into groups; the control group which is instructed via traditional teaching method and the experimental group which is instructed via collaborative writing wiki.

### **Instruments:**

The following instruments were designed and used in the current study:

- 1. The EFL writing skills questionnaire.
- 2. The EFL writing pre-post-test.
- 3. The EFL writing skills rubric.

4. The EFL writing apprehension inventory.

### Design:

The study adopts the quasi-experimental design using two groups; one is experimental and the other is control. The control group used traditional collaborative writing. The experimental group used the collaborative writing wiki.

### **Results and Discussions**

The results of the study were statistically analyzed in terms of its hypotheses and they were discussed in the light of the theoretical background and related studies. Results of the study were reported as follows:

Table (3)
Results of the Post-Administration of the writing skill test

Skill	Group	Number of Students	Mean	Standard Deviation	Degree of Freedom	T- value	Significance level
1	Experimental	30	16.14	98.1	58	19.4	01.
	Control	30	91.11	68.2	30	17.4	UI.
2	Experimental	30	75.22	11.2	58	81.8	01.
	Control	30	26.17	67.2	30	01.0	U1.
3	Experimental	30	66.9	60.0	58	50.3	01.
	Control	30	83.8	70.1	30	30.3	01.
4	Experimental	30	58.21	41.2	58	93.5	01.
	Control	30	51.17	87.2	30	<b>93.</b> 3	UI.
5	Experimental	30	01.19	32.3	58	16.6	01.
	Control	30	31.13	81.3	30	10.0	UI.
As a	Experimental	30	18.87	45.4	58	41.12	01.
whole	Control	30	78.68	83.6	30	71.12	UI.

Based on Table (3), there is statistically significant difference between the mean score of the two groups, experimental and control, in the post-application of the writing skill test in favour of the experimental group students.

Table (4)
T-value and the significance of the differences between the mean scores of the experimental group students in the pre-post-application of the writing skill test

***************************************										
Skill	Group	Number of Students	Mean	Standard Deviation	Degree of Freedom	T- value	Significance level			
1	Pre	30	98.9	36.3	29	30.6	01.			
	Post	30	16.14	19.1	2)	30.0	VI.			
2	Pre	30	83.15	22.4	29	44.8	01.			
	Post	30	75.22	11.2	29	44.0	01.			
3	Pre	30	50.7	28.3	29	50.3	01.			
	Post	30	66.9	60.0	2)	30.3	01.			
4	Pre	30	33.14	88.3	29	18.9	01.			
	Post	30	58.21	41.2	29	10.7	01.			
5	Pre	30	38.11	30.3	29	96.9	01.			
	Post	30	01.19	32.3	29	70.7	V1.			
Total	Pre	30	03.59	72.5	29	61.26	01.			
	Post	30	18.87	45.4	29	01.20	VI.			

Based on Table (4), there is statistically significant difference between the mean score of the experimental group students in the pre-postapplication of the writing skill test in favor of the post-application.

The considerably level of the experimental group students in the post-application of the writing skill test compared to their performance in the pre-application of the writing skills test, indicating the high performance of the students in the skills of post-application of the writing skills test.

Table (5)
Independent-samples t-test results for the differences in the mean scores between the control group and the experimental group in post application of WAI

Group	N	Mean	Std. Deviation	t	Df	Sig.(2- tailed)
Control	30	48.47	7.59	12.15	58	0.01
Experimental	30	29.17	4.25			

Table (5) presents the means, frequencies and percentages of the control group students' responses to the writing apprehension inventory statements. According to the five-point likert scale, the students who had the highest means (4, 5) had a high level of writing anxiety whereas the students who had the lowest means (1, 2) had an acceptable level of writing anxiety. Means (4, 5) indicate that students had a high level of writing anxiety. Means (1, 2) indicate that students had a high level of writing anxiety. A mean of 3.00 literally means that the student was unsure about their feeling toward the statements; however, this score is considered a moderate feeling of apprehension. The average for The control group students' results above

3 and 4 for all the statements of the inventory. This means that the students had a high level of writing anxiety. The results showed a number of remarks: the mean of the third statement was M=4.56 which indicated that writing under specific time was a main source of the students' apprehension; the students' responses to the fifth statement, the mean was M=4.00, showed that students had bad feelings towards writing and, eventually, evaluation was considered as a source for provoking students' writing anxiety.

Table (6)
Means, frequencies and percentages of the control group students'
responses to the WAI statements

responses to the WAI statements											
Item	N	Mi	Max	М.	Control Group						
	Statement		n				1	2	3	4	5
2	Evaluating my	30	1	5	3.80	Frequency	0	1	10	13	6
	writings is a real						0	3.3	33.3	43.3	20
	embracement.					Percentage					.0
3	I feel scared when I	30	1	5	4.56	Frequency	0	0	2	9	19
	write under time							0	6.7	30.0	63
	limitation.					Percentage	0				.3
4	I feel that	30	1	5	3.00	Frequency	0	2	10	14	4
	developing						0	6.7	33.3	46.7	13
	well-organized					Percentage					.3
	writings is beyond										
	my capabilities.										
5	I predict to do	30	1	5	4.00	Frequency	0	1	11	6	12
	poorly in writing						0	3.3	36.7	20.0	40
	classes.					Percentage					.0
6	I avoid practicing	30	1	5	4.83	Frequency	0	0	0	5	25
	writing outside						0	0	0	16.7	83
	the class.					Percentage					.3
7	Writing is a	30	1	5	3.90	Frequency	0	2	10	10	9
	real waste of time.					Percentage	0	6.7	33.3	33.3	30
											.0
8	I feel that my	30	1	5	4.00	Frequency	0	1	8	12	9
	colleagues'						0	3.3	26.7	40.0	30
	writings are					Percentage					.0
	better than mine.										
9	I do my best to	30	1	5	3.76	Frequency	0	2	8	15	5
	avoid written						0	6.7	26.7	50.0	16
	assignments.					Percentage					.7
10	I do not like my	30	1	5	4.73	Frequency	0	0	2	4	24
	colleagues to read						0	0	6.7	13.3	80
	my writings.					Percentage					.0
11	I expect to get low	30	1	5	3.60	Frequency	0	3	7	19	1
	score in writing						0	10.0	23.3	63.3	3.
	assignments.					Percentage					3
12	Expressing my	30	1	5	3.33	Frequency	0	3	14	13	0
	ideas in writing is					l <del></del>	0	10.0	46.7	43.3	0
	really tough.					Percentage					

The results in Table (6) show a significant reduction in the students' apprehension level. According to the mean of the third statement M=1.56, the students are no longer feel frightened during writing under specific time. In addition, the mean of statement number six was M=1.90 which means that the students do not avoid writing tasks outside the class. Moreover, collaborative evaluation is no more a source of anxiety.

Table (7)
T- Test of the experimental group comparing the pre –post application scores

The application	N	Mean	S. D	Df	t.value	Sig.(2- tailed)
Pre-application	30	47.11	12.31			
Post-application	30	67.23	11.30	29	17.2	0.01

A t-test was employed to recognize the significance level of the difference in the mean scores of the experimental group in the pre- and post applications. Result of the t-test indicates that there is a statistically significant difference between the mean scores of the experimental group students on the pre- and post- applications of the writing apprehension inventory in favor of the post-test.

### **Conclusions:**

Based on the above mentioned findings, it can be concluded that the collaborative writing wiki project was effective in improving EFL writing skills and reducing writing apprehension. That effectiveness was evident in the following features:

- Students were capable of improving EFL writing skills and using them in meaningful situations.
- After the experiment, students' ability to write in English well was developed.
- Students enjoyed writing lessons and they even expressed their desire to become English teachers as they had less apprehension.
- Every topic was written easily and that was supported by the team work and different steps that enabled students to feel that they were in an Arabic lesson not an English one.
- -Shy students became more willing to participate in the writing situations inside classroom through using wiki.

### **Recommendations of the Study**

Based on the results and conclusions of this study, the following recommendations are suggested:

- -collaborative writing wiki project is recommended to be used as framework for developing writing skills and it can be adapted to develop other language skills.
- the proposed project is recommended to be integrated in the" writing Course" during secondary stage.
- providing an appropriate climate as well as an collaborative environment is essential for fruitful and effective learning without apprehension.

### **References:**

- Brauer, G. (2000). *Writing across languages*. United States of America: Ablex Publishing Corporation.
- Desilets, A. (2006). *Translation the wiki way: Proceedings of symposium on wikis*. Retrieved from <a href="http://www.wikisym.org/ws2006/proceedings/plgpdf">http://www.wikisym.org/ws2006/proceedings/plgpdf</a>
- Elashri, I. (2014). The effect of the genre-based approach to teaching writing on the EFL al-azhr secondary students' writing skills and their attitudes towards writing. Unpublished doctoral. Faculty of Education, Cairo University.
- Helal, E. (2003). A proposed self-access reading program for developing English language writing skills for first year secondary students. Unpublished M.A. Thesis, Ain Shams University, Cairo, Egypt.
- Lee, S.Y. (2005). Facilitating and inhibiting factors on EFL writing: A model testing with SEM. *Language Learning*, *55* (2), 335-374.
- Lund, A. (2008). Wikis: a Collaborative Approach to Language Production. European Association for Computer Assisted Language Learning 20/1. Available: journals.cambridge.org/article S0958344008000414
- McLeod, S. (1987). Some thoughts about feelings: The affective domain and the writing process. *College Composition and Communication*, 38(4), 426-435.
- Muscara, M. and Beercock, S. (2010). The Wiki- a Virtual Home Base for Constructivist Blended Learning Courses. Procedia Social and Behavioral Science 2/2. Available: *linkinghub.elsevie r.com/retriev e/pii/S187 704 2810 00*
- Ozturk, H. and Cecen, S. (2007). The Effects of Portfolio Keeping on Writing Anxiety of EFL Students. *Journal of Language and Linguistic Studies*, 3(2):219-236.

- Pinkman, K. (2005). Using wikis in the foreign language classroom:

  Encouraging learner independence. *The JALT CALL Journal*, *I*(1), 12- 24. Retrieved December 27, 2016, from http://jaltcall.org/journal/articles/1 1 Pinkman.pdf
- Rubin, B.; Katznelson, H. and Perpignan, H. (2005). Learning for life: the potential of academic writing courses for individual EFL learners. *System*, 33(1):17–27.
- Seitzinger, J. (2006). Be constructive: Wikis, podcasts, and wikis as constructivist learning tools. Learning Solutions e-Magazine. Retrieved November 10, 2015 from http://www.elearningguild.com/pdf/2/073106DES.pdf.
- Song, H. and Chan, Y. (2008). *Educational wiki: A Malaysian University students' perception and experience*. Ascilite Melbourne. Retrieved January 16, 2015 from: http://:www.ascilite.org.au.
- Storch, N. (2005). Collaborative writing: Product, process, and students' reflections. *Journal of Second Language Writing*, *14*, 153–173. doi:10.1016/j.jslw.2005.05.002
- Sun, Y. (2009). Voice wiki: An exploratory study of language learning. Language Learning & Technology, 13(2), 88-103. Retrieved from http://llt.msu.edu/vol13num2/ sun.pdf
- Tierney, R. (1989). The effects of reading and writing upon thinking critically. *Reading Quarterly*, 3(25), 136-137.
- Zhang, D. (2009). The application of wiki in English writing. *Journal of Cambridge Studies*, 4(1), 64-72.